

CLAIMS

- 1 1. An adjustable pedal assembly for a vehicle comprising:
 - 2 a mounting bracket adapted for mounting to a vehicle, wherein the
 - 3 mounting bracket includes a mounting face and a pair of opposed upper arms
 - 4 extending radially from an upper edge of the mounting face;
 - 5 a first lever arm supported between said pair of mounting bracket upper
 - 6 arms at a first fixed pivot point;
 - 7 a swing plate pivotally supported by said first lever arm at a second
 - 8 non-fixed pivot point that is located radially outboard from said first fixed
 - 9 pivot point, wherein said swing plate includes a mounting face, a pair of upper
 - 10 arms extending radially from an upper edge of said mounting face, a lower arm
 - 11 extending vertically from an outer end of said swing plate upper arms and a
 - 12 pedal support arm extending outwardly from a lower edge of said mounting
 - 13 face;
 - 14 a second lever arm, wherein one end of said second lever arm is
 - 15 pivotally attached to said swing plate lower arm at a third non-fixed pivot point
 - 16 and another end of said second lever arm is pivotally attached to said mounting
 - 17 bracket at a fourth fixed pivot point;
 - 18 a pedal arm operatively attached to said swing plate at an upper end of
 - 19 said pedal arm;
 - 20 a pedal pad operatively attached to said pedal arm at a lower end; and
 - 21 an adjustment means operatively connected to said pedal support arm
 - 22 for adjusting the position of said pedal pad relative to the driver, wherein said

23 first lever arm pivots about said fixed pivot point, said swing plate pivots about
24 said second non-fixed pivot point while the second lever arm pivots about said
25 third non-fixed pivot point and said fourth fixed pivot point, to constrain the
26 travel of the pedal pad travels along a predetermined path.

1 2. An adjustable pedal assembly as set forth in claim 1 further
2 comprising a first pivot axis extending longitudinally between said mounting
3 bracket upper arms.

1 3. An adjustable pedal assembly as set forth in claim 1 wherein
2 said first lever arm is a disc-shaped member with a radially extending pivot pin
3 for pivotally supporting said first lever arm therebetween said mounting
4 bracket upper arms.

1 4. An adjustable pedal assembly as set forth in claim 1 wherein
2 said swing plate pivots about a second pivot axis that extends longitudinally
3 between said mounting bracket upper arms at said second non-fixed pivot
4 point.

1 5. An adjustable pedal assembly a set forth in claim 1 wherein said
2 second non-fixed pivot point is located at an outer end of said mounting
3 bracket upper arm, and radially outboard from the first fixed pivot point.

1 6. An adjustable pedal assembly as set forth in claim 1 wherein
2 said second lever arm is a generally planar member.

1 7. An adjustable pedal assembly as set forth in claim 1 wherein an
2 angle formed between said swing plate lower arm and said second lever arm
3 decreases between a non-adjusted pedal position and an adjusted pedal
4 position.

1 8. An adjustable pedal assembly as set forth in claim 1 wherein
2 said adjustment means is a screw drive mechanism having a screw rod
3 slidingly disposed in a guide slot in the swing plate pedal support arm.

1 9. An adjustable pedal assembly as set forth in claim 8 wherein
2 said guide slot is a longitudinally extending slot having a predetermined shape.

1 10. An adjustable pedal assembly as set forth in claim 1 wherein
2 said predetermined path of said pedal between a non-adjusted position and an
3 adjusted position is substantially linear.

1 11. An adjustable pedal assembly as set forth in claim 1 wherein
2 said second non-fixed pivot point is positioned radially outboard and below a
3 horizontal line extending through said first fixed pivot point.

1 12. An adjustable pedal assembly as set forth in claim 1 wherein
2 said first lever arm is a planar member having a generally rectangular shape,
3 and one end of said first lever arm is pivotally mounted to the mounting
4 bracket at said first fixed pivot point and an other end of said first lever arm is
5 pivotally connected to said swing plate at said second non-fixed pivot point.

1 13. An adjustable pedal assembly as set forth in claim 1 wherein
2 said first lever arm is a disc-shaped member having an arcuate slot disposed
3 radially outwardly from the center of said first lever arm, and said first lever
4 arm is pivotally mounted to said mounting bracket at said first fixed pivot point
5 and said swing plate is slidably attached to said first lever arm at said second
6 non-fixed pivot point.

1 14. An adjustable pedal assembly as set forth in claim 1 further
2 comprising:
3 a guide housing having a gear sector with a plurality of gear teeth
4 formed in said mounting bracket upper arms and said gear sector pivots about
5 said first fixed pivot point which is positioned rearwardly of said gear teeth;
6 wherein said mounting bracket upper arm includes an arcuate slot
7 having a radius of curvature centered on said first fixed pivot point, and said
8 swing plate is slidingly support within the arcuate slot; and
9 a gear sector integrally formed in an upper edge of said swing plate,
10 which operatively cooperates with said swing plate gear sector; and

11 a pin extending through the slots in the guide housing and a through
12 bore in a top portion of the swing plate for pivotally attaching said swing plate
13 to said mounting bracket so that said swing plate pivots at a second non-fixed
14 pivot point, such that the pin is guided through an arcuate path formed by the
15 slot in said guide housing of said upper arm to engage said gear sectors as said
16 swing plate is pivoted about said second non-fixed pivot point, such that said
17 swing plate moves downwardly and rearwardly within the slot in said guide
18 housing upper arm.

1 15. An adjustable pedal assembly for a vehicle comprising:
2 a mounting bracket adapted for mounting to a vehicle, wherein the
3 mounting bracket includes a mounting face and a pair of opposed upper arms
4 extending radially from an upper edge of said mounting face;
5 a first lever arm supported between said pair of mounting bracket upper
6 arms at a first fixed pivot point along a first pivot axis extending longitudinally
7 between said mounting bracket upper arms;
8 a swing plate pivotally supported by said first lever arm at a second
9 non-fixed pivot point that is located radially outboard from said first fixed
10 pivot point and along a second pivot axis extending longitudinally between said
11 mounting bracket upper arms, wherein said swing plate includes a mounting
12 face, a pair of upper arms extending radially from an upper edge of said
13 mounting face, a lower arm extending vertically from an outer end of said

14 swing plate upper arms and a pedal support arm extending outwardly from a
15 lower edge of said mounting face;
16 a second lever arm, wherein one end of said second lever arm is
17 pivotally attached to said swing plate lower arm at a third non-fixed pivot point
18 and another end of said second lever arm is pivotally attached to said mounting
19 bracket at a fourth fixed pivot point;
20 a pedal arm operatively attached to said swing plate at an upper end of
21 said pedal arm;
22 a pedal pad operatively attached to said pedal arm at a lower end; and
23 an adjustment means operatively connected to said pedal support arm
24 for adjusting the position of said pedal pad relative to the driver, wherein said
25 first lever arm pivots about said fixed pivot axis, said swing plate pivots about
26 said second non-fixed pivot point while and the second lever arm pivots about
27 said third non-fixed pivot point and said fourth fixed pivot point, to constrain
28 the travel of said pedal pad along a predetermined path that is substantially
29 linear.

1 16. An adjustable pedal assembly as set forth in claim 15 wherein
2 said first lever arm is a disc-shaped member with a radially extending pivot pin
3 for pivotally supporting said first lever arm therebetween said mounting
4 bracket upper arms.

1 17. An adjustable pedal assembly as set forth in claim 15 wherein
2 said second non-fixed pivot point is located at an outer end of said mounting
3 bracket upper arm, and radially outboard from the first fixed pivot point.

1 18. An adjustable pedal assembly as set forth in claim 15 wherein
2 said second lever arm is a generally planar member.

1 19. An adjustable pedal assembly as set forth in claim 15 wherein
2 an angle formed between said swing plate lower arm and said second lever arm
3 decreases between a non-adjusted pedal position and an adjusted pedal
4 position.

1 20. An adjustable pedal assembly as set forth in claim 15 wherein
2 said adjustment means is a screw drive mechanism having a screw rod
3 slidingly disposed in a guide slot in the swing plate pedal support arm.

1 21. An adjustable pedal assembly as set forth in claim 15 wherein
2 said guide slot is a longitudinally extending slot having a predetermined shape.

1 22. An adjustable pedal assembly as set forth in claim 15 wherein
2 said second non-fixed pivot point is positioned radially outboard and below a
3 horizontal line extending through said first fixed pivot point.

1 23. An adjustable pedal assembly as set forth in claim 15 wherein
2 said first lever arm is a planar member having a generally rectangular shape,
3 and one end of said first lever arm is pivotally mounted to the mounting
4 bracket at said first fixed pivot point and an other end of said first lever arm is
5 pivotally connected to said swing plate at said second non-fixed pivot point.

1 24. An adjustable pedal assembly as set forth in claim 15 wherein
2 said first lever arm is a disc-shaped member having an arcuate slot disposed
3 radially outwardly from the center of said first lever arm, and said first lever
4 arm is pivotally mounted to said mounting bracket at said first fixed pivot point
5 and said swing plate is slidably attached to said first lever arm at said second
6 non-fixed pivot point.

1 25. An adjustable pedal assembly as set forth in claim 15 further
2 comprising:
3 a guide housing having a gear sector with a plurality of gear teeth
4 formed in said mounting bracket upper arms and said gear sector pivots about
5 said first fixed pivot point which is positioned rearwardly of said gear teeth;
6 wherein said mounting bracket upper arm includes an arcuate slot
7 having a radius of curvature centered on said first fixed pivot point, and said
8 swing plate is slidingly support within the arcuate slot; and
9 a gear sector integrally formed in an upper edge of said swing plate,
10 which operatively cooperates with said swing plate gear sector; and

11 a pin extending through the slots in the guide housing and a through
12 bore in a top portion of the swing plate for pivotally attaching said swing plate
13 to said mounting bracket so that said swing plate pivots at a second non-fixed
14 pivot point, such that the pin is guided through an arcuate path formed by the
15 slot in said guide housing of said upper arm to engage said gear sectors as said
16 swing plate is pivoted about said second non-fixed pivot point, such that said
17 swing plate moves downwardly and rearwardly within the slot in said guide
18 housing upper arm.

1 26. An adjustable pedal assembly for a vehicle comprising:
2 a mounting bracket adapted for mounting to a vehicle;
3 a swing plate pivotally supported by said mounting bracket at a fixed
4 pivot point, wherein said swing plate includes a mounting face and a pair of
5 upper arms extending radially from an upper edge of said mounting face,
6 wherein said swing plate upper arm includes a longitudinally extending guide
7 channel having a “V” cross-sectional shape;
8 a pedal arm, wherein an upper end of said pedal arm includes a
9 longitudinally extending guide channel having a “V” cross sectional shape, and
10 a lower end of said pedal arm has a pedal pad attached thereto;
11 a pin having a “V” cross sectional shape corresponding to the pedal arm
12 guide channel, for pivotally interconnecting said pedal arm to said swing plate,
13 wherein said pin pivots about a non-fixed pivot point that varies along a
14 predetermined arc defined with said swing plate guide channel; and

15 an adjustment means operatively connected to said pedal arm for
16 adjusting the position of said pedal pad relative to the driver, wherein said non-
17 fixed pivot point varies along said predetermined arc to constrain the travel of
18 said pedal pad along a predetermined path that is substantially linear.

1 27. An adjustable pedal assembly as set forth in claim 26 wherein
2 said non-fixed pivot points varies eccentrically within said guide channel as
3 said pin pivots within said guide channel.

1 28. An adjustable assembly as set forth in claim 27 wherein said pin
2 contacts said guide channel at four contact points that vary eccentrically as said
3 pivot pin pivots within said guide channel.